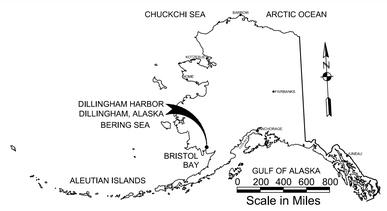


LOCATION/VICINITY MAP(S)

NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 6, NAD83, IN US SURVEY FEET BASED ON NGS PUBLISHED VALUES, HOLDING USACE SBC "DILL 1998" AS N 1,840,505.33, E 1,550,674.26. AND USACE SBC "PICKLE 1998" AS N 1,841,509.51, E 1,550,437.81.

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'). BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "946 5374, SNAG POINT, NUSHAGAK BAY, DILLINGHAM, ALASKA" PUBLISHED 04/29/2013. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "5374 D 2007" AS 60.45' AND NOAA/NOS TIDAL BENCH MARK "5374 E 2007" AS 43.79'. 5374 D IS A DISK SET FLUSH IN A CONCRETE PATIO BETWEEN THE NORTH SIDE OF THE CITY HALL BUILDING AND 5374 E IS A DISK SET IN A CONCRETE APRON IN FRONT OF THE AC STORE IN DILLINGHAM, ALASKA.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING NOAA/NOS TIDAL BENCHMARK "5374 B 2007" (PID BBBF17/VM#18352) AS 18.46'.

4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

5. BATHYMETRY FOR THIS PRE DREDGE SURVEY WAS CONDUCTED ON MAY 04-05, 2014 BY HUGHES & ASSOCIATES, WASILLA, AK. SOUNDINGS WERE COLLECTED USING AN RESON NAVISOUND 210 PRECISION DEPTH SOUNDER WITH A 200KHZ, 3-DEGREE BEAM-WIDTH TRANSDUCER. SOUNDER CALIBRATION WAS PERFORMED USING A DIGIBAR PRO SOUND VELOCITY PROBE. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTIONS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "DILL 1998". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2014 INTEGRATED SOFTWARE.

6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

7. MAP SOUNDINGS ARE SORTED AT 12 FEET AND ARE SHOAL BIASED. VOLUME SOUNDINGS ARE SORTED AT 3 FEET AND ARE SHOAL BIASED.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1277-1 1984	1,841,622.39	1,550,745.71	32.29	3.25 INCH USACE SBC
1277-2 1984	1,840,494.00	1,550,879.74	30.91	3.25 INCH USACE SBC
1277-3 1984	1,840,427.98	1,550,887.60	30.24	3.25 INCH USACE SBC
5374 D 2007	1,841,153.96	1,553,234.39	60.45	NOAA/NOS TIDAL BM
5374 E 2007	1,841,124.62	1,552,531.16	43.79	NOAA/NOS TIDAL BM
DILL 1998	1,840,505.33	1,550,674.26	29.78	3.25 INCH FLAT ALCAP
DILLINGHAM 1947	1,849,383.08	1,551,809.45	130.52	3.5 INCH USCGS SBC
DILLINGHAM AZ MK	1,841,347.21	1,553,844.91		2 INCH USCGS IRON PIPE
PICKEL 1998	1,841,509.51	1,550,437.81	28.88	3.25 INCH FLAT ALCAP
WDS-2 2001	1,841,419.33	1,549,910.66	22.77	3.25 INCH DOMED ALCAP

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-1	1,839,502.58	1,551,238.87
DS-2	1,839,739.66	1,551,159.55

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-3	1,839,644.47	1,550,875.05
DS-4	1,839,407.39	1,550,954.38

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-1	1,840,656.89	1,550,430.66
DL-2	1,840,645.10	1,550,447.69
DL-3	1,840,669.87	1,550,654.63
DL-4	1,841,364.89	1,550,571.44
DL-5	1,841,318.54	1,550,184.21

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-6	1,840,930.19	1,550,305.22
DL-7	1,840,662.40	1,550,337.15
DL-8	1,840,575.05	1,550,329.96
DL-9	1,840,571.77	1,550,369.82
DL-10	1,840,653.73	1,550,376.57

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-1	1,840,569.77	1,550,449.36
SL-2	1,840,610.25	1,550,787.66
SL-3	1,841,437.06	1,550,688.69
SL-4	1,841,461.80	1,550,593.75
SL-5	1,841,405.12	1,550,578.98
SL-6	1,841,432.20	1,550,396.29
SL-7	1,841,432.01	1,550,133.89
SL-8	1,841,362.83	1,550,065.66

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-9	1,840,909.22	1,550,207.01
SL-10	1,840,362.44	1,550,272.21
SL-11	1,840,362.44	1,550,449.36
SL-12	1,839,293.60	1,551,455.40
SL-13	1,840,166.00	1,551,455.40
SL-14	1,840,166.00	1,550,359.57
SL-15	1,839,293.60	1,550,359.57

HARBOR VOLUME COMPUTATIONS

VOLUME AVAILABLE TO PROJECT DEPTH (0')		59,613cy
VOLUME AVAILABLE BETWEEN P.D. (0') AND MAX-PAY DEPTH (-2')		17,598cy
VOLUME AVAILABLE TO SIDE-SLOPES	41,625 CY	~~25,925cy~~
TOTAL VOLUME AVAILABLE IN HARBOR	118,836 CY	~~103,136cy~~

STATE OF ALASKA
49TH
CORY S. HUGHES
LS-13366
REGISTERED PROFESSIONAL LAND SURVEYOR

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO.: W91189-14-C-0001
CONTRACTOR: ALASKA MARINE EXCAVATION,LLC.
CITY: ANCHOR POINT STATE: ALASKA
Recommended: ---------- Approved: ---------- Date: ----------
PRIME CONTRACTOR CHIEF, SURVEY SECTION

REVISION	DATE	DESCRIPTION	BY	APPD
1	17/2/14	SIDE-SLOPE QUANTITY AVAIL.	CSH	MGT

DRAWN BY: CSH & BTH
DRAWN BY: CSH
APPROVED BY: A. CHURCHILL, SECTION CHIEF (PM-CP)
SCALE: 1:2,000
SIZE: ANSI E
DATE: 15 May 2014
UPC: 1277-14
CONTRACT NO.: W91189-14-C-0001
CHECKED BY: CSH
SURVEY DATE: 4-5-2014
FILE NAME: DILLINGHAM HARBOR PRECEDGE FINAL.DWG

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

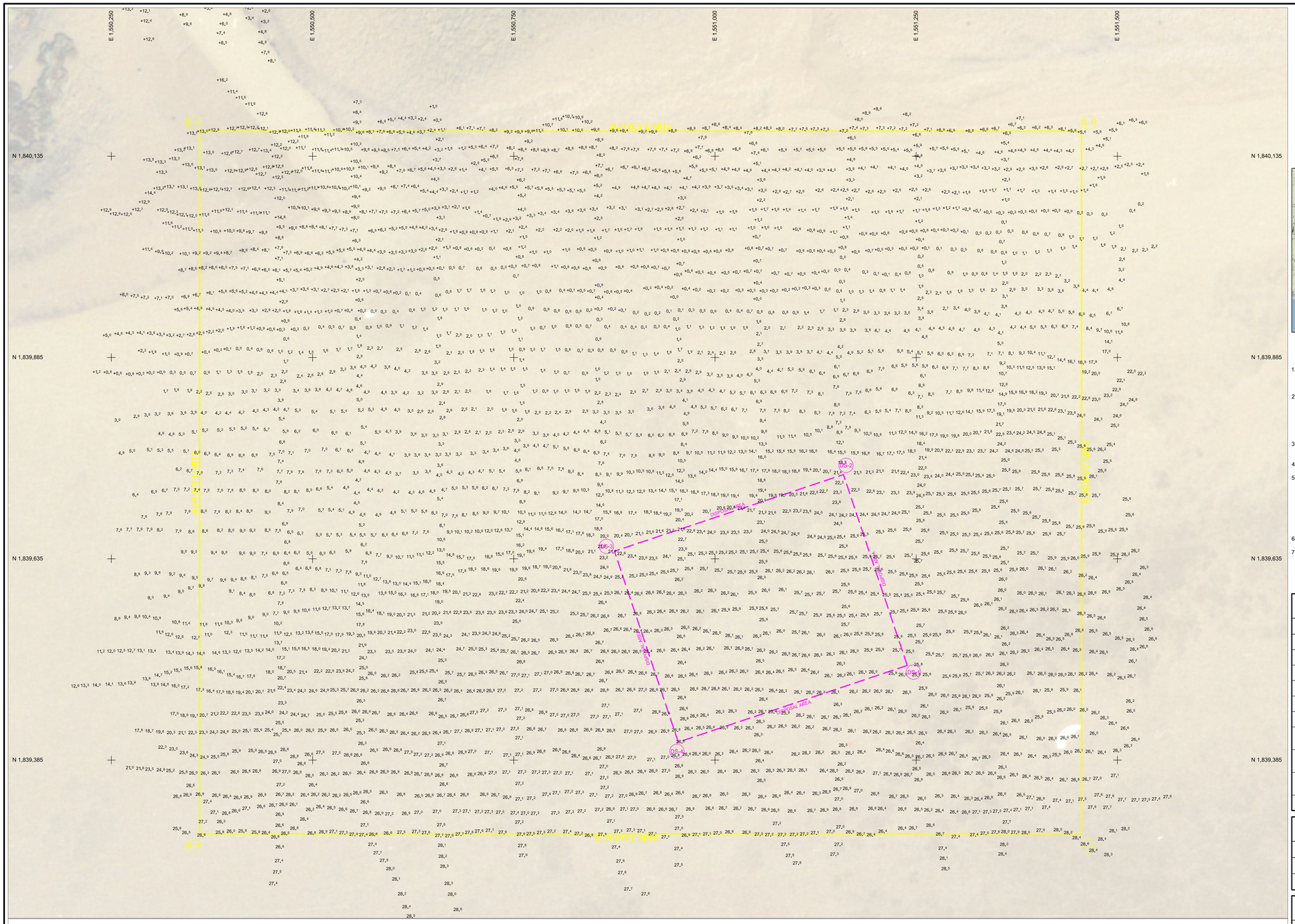
HUGHES & ASSOCIATES
PO BOX 1-2-3 LOOP
WASILLA, AK 99654

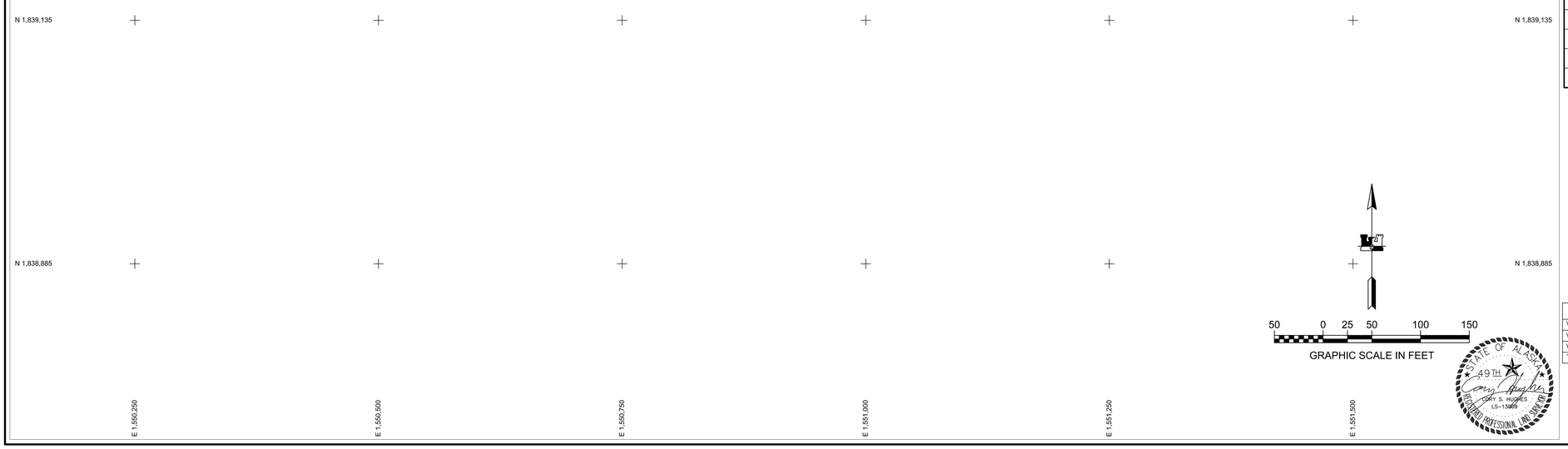
DILLINGHAM, ALASKA
DILLINGHAM HARBOR
PRE-DREDGE HYDROGRAPHIC SURVEY
MAY 04-05, 2014

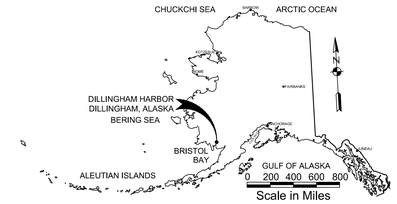
SHEET IDENTIFICATION

V-101

Sheet 1 of 9







LOCATION/VICINITY MAP(S)

NOTES

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CORNER#	NORTHING	EASTING
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DS-2	1,839,739.66	1,551,159.55

DISPOSAL AREA

CORNER#	NORTHING	EASTING
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DS-4	1,839,407.39	1,550,954.38

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DL-9	1,840,571.77	1,550,369.82
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CORNER#	NORTHING	EASTING
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CORNER#	NORTHING	EASTING
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VOLUME AVAILABLE TO SIDE-SLOPES	41,625 CY	~~25,925cy~~
TOTAL VOLUME AVAILABLE IN HARBOR	118,836 CY	~~103,136cy~~

STATE OF ALASKA 49TH
CORY S. HUGHES
LS-13069
REGISTERED PROFESSIONAL LAND SURVEYOR

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO.: W91189-14-C-0001
CONTRACTOR: ALASKA MARINE EXCAVATION,LLC.
CITY: ANCHOR POINT STATE: ALASKA
Recommended: ---------- Approved: ---------- Date: ----------
PROJECT ENGINEER CHIEF SURVEY SECTION CONTRACTOR

REVISION	DATE	DESCRIPTION	BY	APPD
1	7/7/14	STDE-SLOPE QUANTITY AVAIL.	CSH	MGT

DATE	DESCRIPTION	BY	APPD

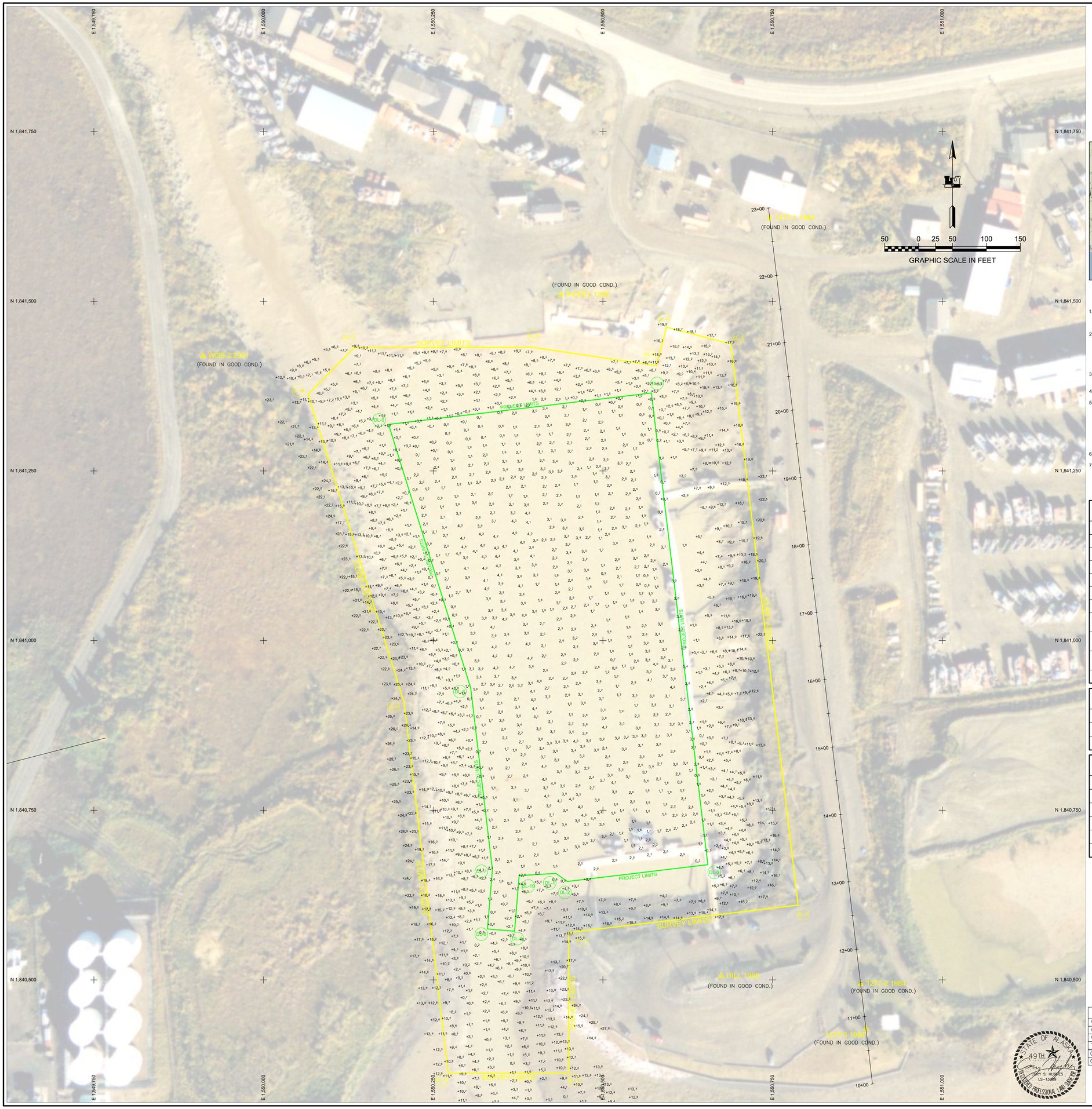
DATE: 15 May 2014
UFC: 1277-1-14
CONTRACT NO.: W91189-14-C-0001
PLOT DATE: 7-7-2014
FILE NAME: [DILLINGHAM HARBOR PRE/DREDGE (FINAL DWG)
SIZE: ANSI E
SURVEYED BY: CSH & BTH
DRAWN BY: CSH
CHECKED BY: CSH
APPROVED BY: A. CHURCHILL, SECTION CHIEF (PM-CP)
SCALE: 1" = 50'

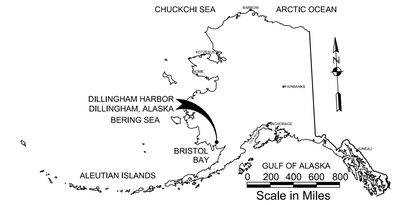
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

HUGHES & ASSOCIATES
42025 E. CLAIRE LOOP
WASILLA, AK 99654

DILLINGHAM, ALASKA
DILLINGHAM HARBOR
PRE-DREDGE HYDROGRAPHIC SURVEY
MAY 04-05, 2014

SHEET IDENTIFICATION
V-102
Sheet 2 of 9





LOCATION/VICINITY MAP(S)

NOTES

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4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.
5. BATHYMETRY FOR THIS POST DREDGE SURVEY WAS CONDUCTED ON JUNE 04-05, 2014 BY HUGHES & ASSOCIATES, WASILLA, AK. SOUNDINGS WERE COLLECTED USING AN RESON NAVISOUND 210 PRECISION DEPTH SOUNDER WITH A 200KHZ, 3-DEGREE BEAM-WIDTH TRANSDUCER. SOUNDER CALIBRATION WAS PERFORMED USING A DIGIBAR PRO SOUND VELOCITY PROBE. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTIONS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "DILL 1998". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2014 INTEGRATED SOFTWARE.
6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
7. MAP SOUNDINGS ARE SORTED ON 12 FOOT CENTERS. VOLUME SOUNDINGS ARE SORTED ON 1 FOOT CENTERS.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1277-1 1984	1,841,622.39	1,550,745.71	32.29	3.25 INCH USACE SBC
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DISPOSAL AREA

CORNER#	NORTHING	EASTING
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DS-2	1,839,739.66	1,551,159.55

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CORNER#	NORTHING	EASTING
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PROJECT LIMITS

CORNER#	NORTHING	EASTING
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CORNER#	NORTHING	EASTING
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SL-12	1,839,293.60	1,551,455.40
SL-13	1,840,166.00	1,551,455.40
SL-14	1,840,166.00	1,550,359.57
SL-15	1,839,293.60	1,550,359.57

HARBOR VOLUME COMPUTATIONS

VOLUME REMOVED TO PROJECT DEPTH (0')	59,460cy
VOLUME REMOVED BETWEEN P.D. (0') AND MAX-PAY DEPTH (-2')	15,662cy
VOLUME REMOVED TO SIDE-SLOPES	23,900cy
TOTAL VOLUME REMOVED IN HARBOR	99,022cy
OVER-DREDGE VOLUME WITHIN HARBOR BASIN	7,382cy
OVER-DREDGE VOLUME WITHIN SIDE SLOPES	3,022cy

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACTOR: ALASKA MARINE EXCAVATION,LLC.
CONTRACT NO.: W91189-14-C-0001
CITY: ANCHOR POINT STATE: ALASKA
Recommended: Approved: Date:
PROJECT ENGINEER / CONTRACTOR / CHIEF, DESIGN SECTION

DATE	BY	APPD	REVISION	DATE	DESCRIPTION	BY	APPD

DATE	DESCRIPTION	BY	APPD

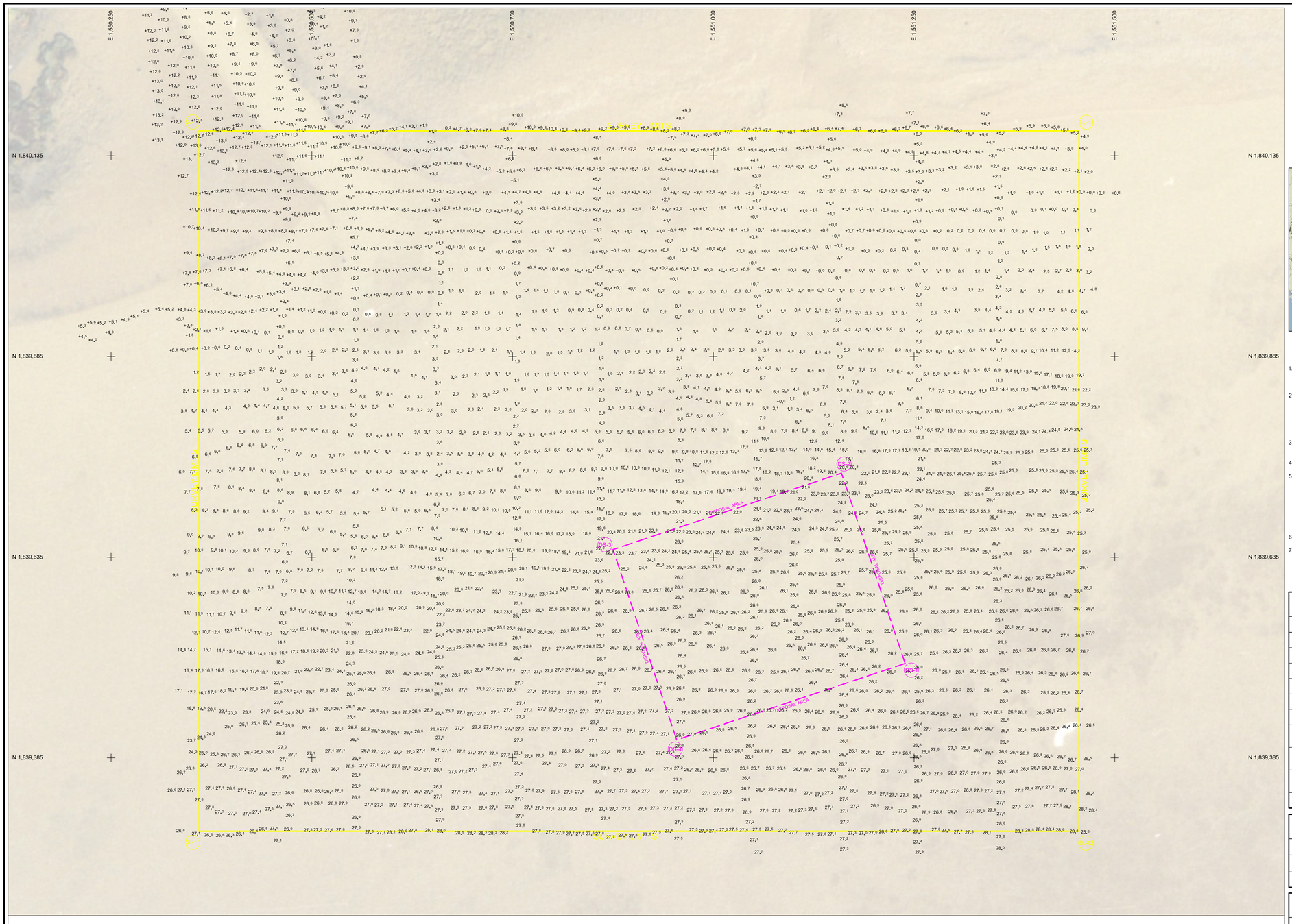
U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
ATTN: CEPOA-EP-C
JBER, ALASKA 99506-0898

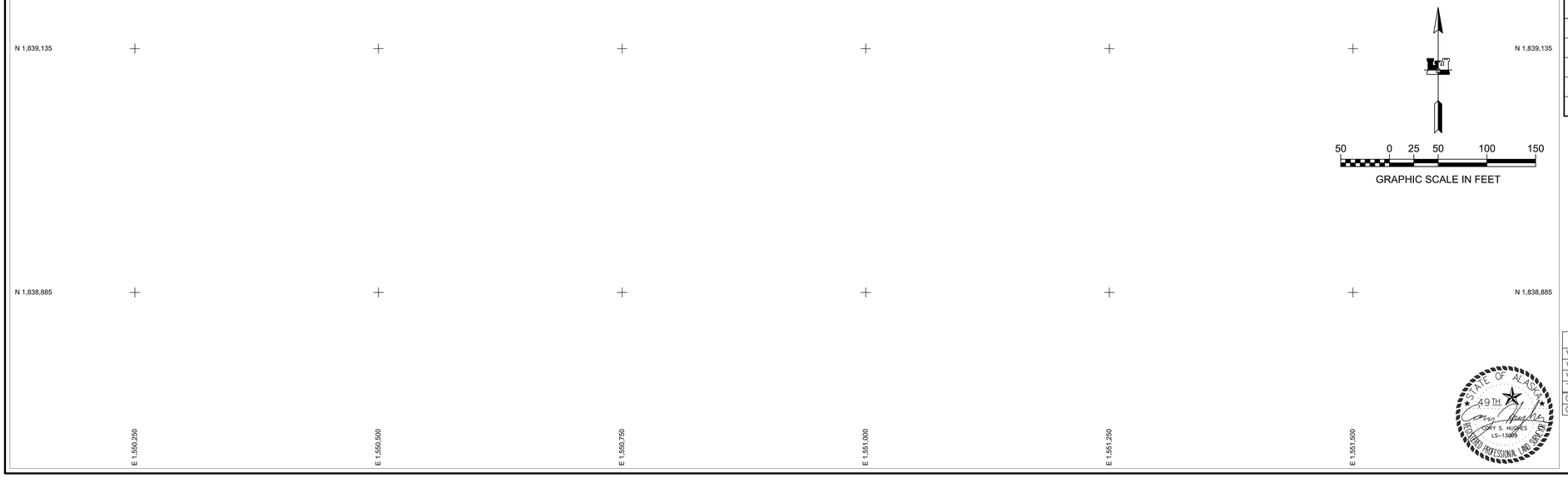
HUGHES & ASSOCIATES
PO BOX 1 / 2 MILE LOOP
WASILLA, AK 99654

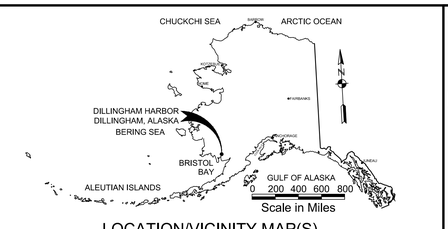
DATE: 7 July 2014
SCALE: 1:20
CONTRACT NO.: W91189-14-C-0001
DRAWN BY: CSH
CHECKED BY: DSH
PLOT DATE: 7/7/2014
DWG NO.: V-101
SIZE: ANSI D
FILE NAME: 2014 DILLINGHAM HARBOR POSTDREDGE (FINAL).DWG
REVIEWED BY: CSH & BTH
APPROVED BY: A. CHURCHILL, SECTION CHIEF (PM-CP)

DILLINGHAM, ALASKA
DILLINGHAM HARBOR
POST-DREDGE HYDROGRAPHIC SURVEY
JUNE 04-05, 2014

SHEET IDENTIFICATION
V-101
Sheet 1 of 9







LOCATION/VICINITY MAP(S)

NOTES

1. PRIMARY PROJECT HORIZONTAL CONTROL IS ALASKA STATE PLANE, ZONE 6, NAD83, IN US SURVEY FEET BASED ON NGS PUBLISHED VALUES, HOLDING USACE SBC "DILL 1998" AS N 1,840,505.33, E 1,550,674.26. AND USACE SBC "PICKLE 1998" AS N 1,841,509.51, E 1,550,437.81.

2. VERTICAL CONTROL IS MEAN LOWER LOW WATER (MLLW=0.0'). BASED ON THE NOAA/NOS TIDAL BENCH MARK LIST: "946 5374, SNAG POINT, NUSHAGAK BAY, DILLINGHAM, ALASKA" PUBLISHED 04/29/2013. THIS TIDAL DATUM IS BASED ON THE 1983-2001 TIDAL EPOCH AND IS REFERENCED BY HOLDING NOAA/NOS TIDAL BENCH MARK "5374 D 2007" AS 60.45' AND NOAA/NOS TIDAL BENCH MARK "5374 E 2007" AS 43.79'. 5374 D IS A DISK SET FLUSH IN A CONCRETE PATIO BETWEEN THE NORTH SIDE OF THE CITY HALL BUILDING AND 5374 E IS A DISK SET IN A CONCRETE APRON IN FRONT OF THE AC STORE IN DILLINGHAM, ALASKA.

3. VERTICAL TIES TO THE NATIONAL SPATIAL REFERENCE SYSTEM ARE BASED ON PUBLISHED NAVD88 ELEVATIONS HOLDING NOAA/NOS TIDAL BENCHMARK "5374 B 2007" (PID BBBF17/VM#18352) AS 18.46'.

4. SOUNDINGS ARE IN FEET AND ARE MINUS UNLESS OTHERWISE INDICATED.

5. BATHYMETRY FOR THIS POST DREDGE SURVEY WAS CONDUCTED ON JUNE 04-05, 2014 BY HUGHES & ASSOCIATES, WASILLA, AK. SOUNDINGS WERE COLLECTED USING AN RESON NAVISOUND 210 PRECISION DEPTH SOUNDER WITH A 200KHZ, 3-DEGREE BEAM-WIDTH TRANSDUCER. SOUNDER CALIBRATION WAS PERFORMED USING A DIGIBAR PRO SOUND VELOCITY PROBE. POSITIONING AND TIDES WERE PROVIDED IN REAL TIME USING A TRIMBLE R8 RTK GPS RECEIVER OPERATING ON KINEMATIC CORRECTIONS BROADCAST FROM A TRIMBLE R8 RTK BASE RECEIVER SET AT CONTROL STATION, "DILL 1998". VESSEL NAVIGATION, DATA COLLECTION AND PROCESSING WERE PERFORMED USING HYPACK 2014 INTEGRATED SOFTWARE.

6. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.

7. MAP SOUNDINGS ARE SORTED ON 12 FOOT CENTERS. VOLUME SOUNDINGS ARE SORTED ON 1 FOOT CENTERS.

SURVEY CONTROL DATA

STATION	NORTHING	EASTING	MLLW	DESCRIPTION
1277-1 1984	1,841,622.39	1,550,745.71	32.29	3.25 INCH USACE SBC
1277-2 1984	1,840,494.00	1,550,879.74	30.91	3.25 INCH USACE SBC
1277-3 1984	1,840,427.98	1,550,887.60	30.24	3.25 INCH USACE SBC
5374 D 2007	1,841,153.96	1,553,234.39	60.45	NOAA/NOS TIDAL BM
5374 E 2007	1,841,124.62	1,552,531.16	43.79	NOAA/NOS TIDAL BM
DILL 1998	1,840,505.33	1,550,674.26	29.78	3.25 INCH FLAT ALCAP
DILLINGHAM 1947	1,849,383.08	1,551,809.45	130.52	3.5 INCH USCGS SBC
DILLINGHAM AZ MK	1,841,347.21	1,553,844.91		2 INCH USCGS IRON PIPE
PICKEL 1998	1,841,509.51	1,550,437.81	28.88	3.25 INCH FLAT ALCAP
WDS-2 2001	1,841,419.33	1,549,910.66	22.77	3.25 INCH DOMED ALCAP

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-1	1,839,502.58	1,551,238.87
DS-2	1,839,739.66	1,551,159.55

DISPOSAL AREA

CORNER#	NORTHING	EASTING
DS-3	1,839,644.47	1,550,875.05
DS-4	1,839,407.39	1,550,954.38

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-1	1,840,656.89	1,550,430.66
DL-2	1,840,645.10	1,550,447.69
DL-3	1,840,669.87	1,550,654.63
DL-4	1,841,364.89	1,550,571.44
DL-5	1,841,318.54	1,550,184.21

PROJECT LIMITS

CORNER#	NORTHING	EASTING
DL-6	1,840,930.19	1,550,305.22
DL-7	1,840,662.40	1,550,337.15
DL-8	1,840,575.05	1,550,329.96
DL-9	1,840,571.77	1,550,369.82
DL-10	1,840,653.73	1,550,376.57

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-1	1,840,569.77	1,550,449.36
SL-2	1,840,610.25	1,550,787.66
SL-3	1,841,437.06	1,550,688.69
SL-4	1,841,461.80	1,550,593.75
SL-5	1,841,405.12	1,550,578.98
SL-6	1,841,432.20	1,550,396.29
SL-7	1,841,432.01	1,550,133.89
SL-8	1,841,362.83	1,550,065.66

SURVEY LIMITS

CORNER#	NORTHING	EASTING
SL-9	1,840,909.22	1,550,207.01
SL-10	1,840,362.44	1,550,272.21
SL-11	1,840,362.44	1,550,449.36
SL-12	1,839,293.60	1,551,455.40
SL-13	1,840,166.00	1,551,455.40
SL-14	1,840,166.00	1,550,359.57
SL-15	1,839,293.60	1,550,359.57

HARBOR VOLUME COMPUTATIONS

VOLUME REMOVED TO PROJECT DEPTH (0')	59,460cy
VOLUME REMOVED BETWEEN P.D. (0') AND MAX-PAY DEPTH (-2')	15,662cy
VOLUME REMOVED TO SIDE-SLOPES	23,900cy
TOTAL VOLUME REMOVED IN HARBOR	99,022cy
OVER-DREDGE VOLUME WITHIN HARBOR BASIN	7,382cy
OVER-DREDGE VOLUME WITHIN SIDE SLOPES	3,022cy

STATE OF ALASKA 49TH
CORY S. HUGHES
LS-13089
PROFESSIONAL LAND SURVEYOR

US Army Corps of Engineers
ALASKA DISTRICT

CONTRACT NO.: W91149-14-C-0001
CONTRACTOR: ALASKA MARINE EXCAVATION,LLC.
STATE: ALASKA
CITY: ANCHOR POINT
Recommended: ---------- PROJECT MANAGER
Approved: ---------- CHIEF, SURVEY SECTION
Date: ---------- CHIEF, CONTRACTING

VERSION	DATE	DESCRIPTION	BY	APPD	REVISION	DATE	DESCRIPTION	BY	APPD

DATE: 7 July 2014
SCALE: 1:25,000
CONTRACT NO.: W91149-14-C-0001
DRAWING NO.: 2014-DILLINGHAM-HARBOR-POSTDREDGE_PANL.DWG
TRAVERSED BY: CSH & BTH
DRAWN BY: BSH
CHECKED BY: BSH
APPROVED BY: A. CHURCHILL, SECTION CHIEF (PM-OP)
PLOT DATE: 7 JULY 2014
SCALE: 1" = 50'
SIZE: (ANSI) E
FILE NAME: 2014-DILLINGHAM-HARBOR-POSTDREDGE_PANL.DWG

U.S. ARMY CORPS OF ENGINEERS
ALASKA DISTRICT
P.O. BOX 6898
JBER, ALASKA 99506-0898

HUGHES & ASSOCIATES
PO BOX 1-1-1 LOCKER 1-1-1
WASILLA, AK 99654

DILLINGHAM, ALASKA
DILLINGHAM HARBOR
POST-DREDGE HYDROGRAPHIC SURVEY
JUNE 04-05, 2014

SHEET IDENTIFICATION
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